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PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of: HEZI FRIEDMAN ET AL.  
Serial No.: 09/862,986  
Filed: May 22, 2001  
For: SECURE UNIVERSAL SERIAL BUS  
Group No.: 2132  
Examiner: Kambiz Zand

MAIL STOP APPEAL BRIEF - PATENTS  
Commissioner for Patents  
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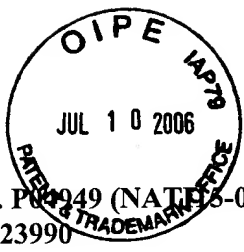
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**REPLY BRIEF**

Sir:

Applicants herewith respectfully submit that the Examiner's decision of August 23, 2005, finally rejecting Claims 2, 8-10, 13, 15, and 18-20 in the present application, should be reversed, in view of the following arguments and authorities. This Brief is submitted on behalf of Appellant for the application identified above, in Reply to the Examiner's Answer in this appeal. No fee is believed to be due. Please charge any additional necessary fees to Deposit Account No. 50-0208.



ATTORNEY DOCKET NO. P04949 (NATI15-04949)  
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### **Status of Claims**

Claims 2, 8-10, 13, 15, and 18-20 are under final rejection, and are each appealed. Claims 6, 11, 12, 14, 16, and 17 were objected to in the final Office Action, and have been indicated by the Examiner as including allowable subject matter. Claims 3-5, 7, and 10, though rejected in the final Office Action, were objected to in the Advisory Action after amendment by the Applicant, and have been indicated by the Examiner as including allowable subject matter. Claim 1 was previously cancelled. Claims 2-20 are pending.

**Grounds of Rejection to be Reviewed on Appeal**

- 1. Is Claim 2 obvious over Rawlins (USP 6,216,183, “Rawlins”)?**
- 2. Are Claims 8-10, 13, and 15 obvious over Flannery (USP 5,799,196, “Flannery”) in  
view of Rawlins?**
- 3. Is Claim 20 obvious over Flannery in view of Rawlins in further view of Ben-Dor *et al.* (US2002/0141418A1, “Ben-Dor”)?**
- 4. Are Claims 18-19 obvious over Flannery in view of Rawlins in further view of  
Lemay *et al.* (US2002/0144115A1, “Lemay”)?**

## **ARGUMENT**

### **Stated Grounds of Rejection**

The rejections outstanding against the Claims are as follows:

In Section 9 of the August 23, 2005 Office Action, Claims 2 and 3 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,216,183, to Rawlins ("Rawlins"). In the Advisory Action, claim 3 was objected to and indicated as including allowable subject matter, and so claim 3 is not argued herein.

In Section 11 of the August 23, 2005 Office Action, Claims 8-10, 13, and 15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,799,196, to Flannery ("Flannery") in view of Rawlins.

In Section 12 of the August 23, 2005 Office Action, Claim 20 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Flannery in view of Rawlins and further in view of published patent application US2002/0141418A1 to Ben-Dor *et al.* ("Ben-Dor"). Applicant respectfully notes that the actual statement of rejection in both the Final Office Action and the Examiner's Answer references claims 8-10, 13, and 15, but only claim 20 is addressed (and it is the only claim rejection that references Ben-Dor), so Applicant assumes that Examiner Zand intended to reference claim 20 here. Examiner Zand has not made a formal statement of a ground of rejection of claim 20.

In Section 13 of the August 23, 2005 Office Action, Claims 18-19 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Flannery in view of Rawlins and further in view of published patent application US2002/0144115A1 to Lemay *et al.* ("Lemay"). Applicant respectfully notes that the actual statement of rejection in both the Final Office Action and the Examiner's Answer references only claim 18, but claim 19 is also discussed, so Applicant assumes that Examiner Zand intended to reference claims 18-19 here. Examiner Zand has not made a formal statement of a ground of rejection of claim 19.

**Response to Examiner's Answer**

The arguments made in the Appeal Brief are incorporated herein and re-urged. The arguments below are only those in specific response to Examiner Zand's "Response to Arguments" made in the Examiner's Answer, and are only made with regard to those claims where a further argument is necessary..

**Ground of Rejection 1: Claims 2 was rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,216,183, to Rawlins ("Rawlins")**

**Claim 2**

Claim 2 requires, "An apparatus for providing a secure serial bus (USB) comprising a secure channel for transferring data, wherein said apparatus comprises a secure USB domain device coupled to an external host computer, wherein said secure USB domain device comprises elements that are not accessible by said external host computer."

Examiner Zand stated in the Final Office Action that in the Rawlins system "there is no accessibility between the host and the USB device unless authorized, and no accessibility is allowed during normal operation." (*August 23, 2005 Office Action, Page 2, Lines 16-18*). This statement is not supported by Rawlins. In the Rawlins system there is no accessibility between the host (processor 12) and the USB device (USB Host Controller 30) during system management mode (SMM) of operation unless authorized by the USB Host Controller 30. Whenever the system management mode (SMM) mode of operation is activated, the host (processor 12) is able to access elements within the USB Host Controller 30.

The Rawlins reference does not state that "no accessibility is allowed during normal operation." The fact that accessibility is allowed during secure operations does not imply that there is no accessibility during normal operations. In normal operations there is no need to restrict accessibility of the host (processor 12) to USB Host Processor 30. In any event, USB Host Processor 30 of Rawlins does comprise elements that are accessible by the host (processor 12) during the

system management mode (SMM) of operation.

Examiner Zand responds in the Examiner's Answer that

[Rawlins] col. 3, lines 7-26 clearly disclose during the normal operation such devices not accessible [*sic*] since it has to monitor target endpoint address of a USB device within the memory and such location only [*sic*] accessible during secure mode, therefore if such address (location) is not accessible during normal mode then how [*sic*] a USB device can be accessed when the address where it is found is not accessible (that is putting the address of the USB device into system memory 18 of the system 10). ... However the controller only transfer [*sic*] the target address of the USB device to the memory system 18 location. Therefore only authorized user [*sic*] that have access to the location of the memory may use the address of the target USB device in order to access it. *Examiner's Answer, pages 9-10.*

This passage of the Examiner's Answer illustrates Examiner Zand's misunderstanding of the teachings of Rawlins. In col. 3, lines 7-26, Rawlins teaches that a password is transferred from a USB device to a specified location in system memory. The location in which the password is stored is not accessible during normal system operation, and a user also does not know the address at which it could be stored. This is not a teaching at all that the secure USB domain device comprises elements that are not accessible by said external host computer, as claimed. For the Board's convenient reference, below is this passage of Rawlins as relied upon by Examiner Zand, with emphasis added:

At least one function of the SMI handler code is to transfer the secured, keyboard-entered information (i.e., information from a monitored target endpoint address of a USB device) to a specified location within system memory. That location is accessible only while SMI is asserted, or during system management mode (SMM).



In this fashion, the password entered upon the keyboard is contained within a secured portion of system memory not accessible during normal operation of the computer system, and certainly not accessible to an unauthorized user who is not privy to the endpoint addresses stored within the target endpoint address registers. Not knowing those addresses, or how the registers are configured during boot-up, or during subsequent re-configuration via a USB "control packet", unauthorized access is not allowed--especially since all USB transfers, including control transfers, bulk transfers in general, isochronous transfers and interrupt transfers can be trapped to allow generation of an SMI which, in turn, protects any hardware resource against unwarranted intrusion.

It is clear that Rawlins is teaching that a password in system memory is inaccessible during normal operation, not that any portion of the USB device is protected during normal operation. Further, this passage is drawn to protecting portions of Rawlins's system from an unauthorized user who may not know some relevant addresses, and does not teach or suggest a secure USB domain device having elements that are not accessible by said external host computer, as claimed.

Therefore, claim 2 should be allowed over Rawlins, and Examiner Zand's obviousness rejection should be reversed.

**Ground of Rejection 2: Claims 8-10, 13, and 15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,799,196, to Flannery ("Flannery") in view of Rawlins.**

These claims are allowable over this combination of references, as discussed below.

#### **Claim 8**

Claim 8 requires at least one host computer capable of supporting USB input/output devices,

said at least one host computer comprising a USB bus, USB client software, and USB system software; and a secure USB domain device capable of at least one of: blocking outgoing data flows of confidential information, forwarding outgoing data flows of encrypted confidential information, and forwarding outgoing data flows of non-confidential information.

Examiner Zand's error in response to the clear distinctions described in the Appeal Brief with regard to claim 8 is simple: Examiner Zand argues that "in secure mode the access to the USB device and the flow from the USB device is block [sic] unless authorized." *Examiner's Answer, page 11.*

While this is an interesting argument, it is irrelevant with respect to claim 8 whether "access to the USB device" is blocked. Examiner Zand is, in fact, arguing a limitation that is not found in the claims.

Claim 8 requires that the secure USB domain device is capable of at least one of: blocking outgoing data flows of confidential information, forwarding outgoing data flows of encrypted confidential information, and forwarding outgoing data flows of non-confidential information. This is a capability of the USB domain device, not of the host system. This feature is not taught or suggested by Flannery, Rawlins, or any combination of them. The Examiner's argument in response is not drawn to the capability of the USB device, but to blocking communication to the USB device.

As such, Examiner Zand's rejection should be reversed, and claim 8 should be allowed over the art of record.

### **Claim 10**

Claim 10 requires that the secure USB domain device of claim 8 is embedded within said at least one host computer.

In the Examiner's Answer, Examiner Zand makes the remarkable statement that "the limitation 'secure USB domain device is embedded within said at least one host computer' only represent [sic] the embedding of where the address for the USB device is located, that is the memory of the computer be embedded within so by using that address one can access USB devices that externally get connected to the computer." *Examiner's Answer, page 11.*

This “interpretation” is contrary to the plain language of the claims, and in fact Examiner Zand’s statement is completely unsupported (and nor does Examiner Zand make any attempt to support this statement). The specification clearly teaches that in some embodiments, the USB device is physically embedded in the host computer. For example, page 30, line 4 of the specification indicates that “a secure domain 330 is embedded within Host 320”, and Figure 3b clearly illustrates element 330 physically embedded in host computer 320.

As such, Examiner Zand’s rejection should be reversed, and claim 10 should be allowed over the art of record.

**Claim 15**

Claim 15 requires a method for providing a secure universal serial bus (USB) capable of transferring information over a secure channel, said method comprising the steps of: providing at least one host computer capable of supporting USB input/output devices, said at least one host computer comprising a USB Bus, USB client software, and USB system software; and providing a secure USB domain device capable of at least one of: blocking outgoing data flows of confidential information, forwarding outgoing data flows of encrypted confidential information, and forwarding outgoing data flows of non-confidential information.

As noted above with regard to claim 8, Examiner Zand’s error in response to the clear distinctions described in the Appeal Brief with regard to claim 15 is simple: Examiner Zand argues that “in secure mode the access to the USB device and the flow from the USB device is block [sic] unless authorized.” *Examiner’s Answer, page 12*. While this is an interesting argument, it is irrelevant with respect to claim 8 whether “access to the USB device” is blocked. Examiner Zand is, in fact, arguing a limitation that is not found in the claims.

Claim 15 requires that the secure USB domain device is capable of at least one of: blocking outgoing data flows of confidential information, forwarding outgoing data flows of encrypted confidential information, and forwarding outgoing data flows of non-confidential information. This is a capability of the USB domain device, not of the host system. This feature is not taught or

suggested by Flannery, Rawlins, or any combination of them. The Examiner's argument in response is not drawn to the capability of the USB device, but to blocking communication to the USB device.

As such, Examiner Zand's rejection should be reversed, and claim 15 should be allowed over the art of record.

Therefore, Claims 8-10, 13, and 15 should be allowed over the combination of Flannery and Rawlins, and Examiner Zand's obviousness rejections should be reversed.

**Ground of Rejection 3: Claim 20 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Flannery in view of Rawlins and further in view of published patent application US2002/0141418A1 to Ben-Dor et al. ("Ben-Dor").**

As noted above, although the specific statement for this ground of rejection referred to claims 8-10, 13, and 15, and not to claim 20, because only claim 20 was then discussed, Applicant assumes that Examiner Zand intended to reject only claim 20 over this combination of art. However, it should be noted that Ben-Dor fails to supply the teachings of claims 8-10, 13, and 15 not found in Flannery or Rawlins, as discussed above.

Examiner Zand still has not formally stated a rejection of claim 20.

**Claim 20**

Claim 20 requires that the method of claim 15 further comprises the steps of coupling a virtual conduit interface to said secure USB domain device; coupling said virtual conduit interface to at least one non-USB device; and using said virtual conduit interface to provide a secure USB channel for transferring information to said at least one non-USB device.

As claim 20 depends from claim 15, the arguments above with regard to claim 15 apply here as well, and are incorporated herein by reference.

Examiner Zand concedes that these limitations are not taught or suggested by Flannery or Rawlins, alone or in combination.

Ben-Dor describes a virtual USB Host Controller that communicates between a USB bus

driver and a network stack. However, Ben-Dor's USB bus driver is not described as being a secure USB domain device as in claim 15, and there is no motivation, teaching, or suggestion to modify Ben-Dor's system to meet the claim limitations.

Examiner Zand responds that "the features upon which applicant relies (i.e. "USB bus driver"), [sic] are not recited in the rejected claim(s)."

Examiner Zand is apparently confused. Claim 20 requires a secure USB domain device. Ben-Dor doesn't teach or suggest a secure USB domain device. So, the device recited in the claims is not taught or suggested by Ben-Dor.

Ben-Dor does have a "virtual USB Host Controller" and a "USB bus driver". Neither of these are taught or suggested to meet the limitations of the claimed secure USB domain device. So, the Examiner Zand is correct to the extent that the devices disclosed by Ben-Dor are not, in fact, recited in the rejected claims.

As such, Examiner Zand's rejection should be reversed, and claim 20 should be allowed over the art of record, and Examiner Zand's obviousness rejection should be reversed.

**Motivation to Combine or Modify**

As described above, each of the rejections includes one or another combination of the Flannery, Rawlins, Ben-Dor, and Lemay references. Examiner Zand provides a variety of statements alleging various “motivations” for combining these references. As described below, these alleged motivations are not supported by the art of record, and so these particular combinations of references are improper.

The extensive arguments presented in the Appeal Brief with regard to lack of motivation are incorporated herein and re-urged.

In the Examiner’s Answer, Examiner Zand responds with repeated arguments relying on “harmony and environment in relation with other references” and similar “harmony” phrases. Applicant is unfamiliar with any statutory or common law that accords these “harmony” arguments with any weight whatsoever. Examiner Zand’s response to Applicant’s showing of lack of motivation therefore appears to have no basis at all in the statutory and common law requirements for a proper obviousness rejection, and should be accorded little if any weight.



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**REQUESTED RELIEF**

The Board is respectfully requested to reverse the outstanding rejections and return this application to the Examiner for allowance.

Respectfully submitted,  
MUNCK BUTRUS P.C.

Date:

*July 5, 2006*

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